

REMARKS

This application was filed with 17 claims. Claim 2 was previously canceled. Claims 18 – 21 were previously added by amendment. Claims 6 – 12, 16 and 18 – 21 have been allowed. Claims 1, 3, 13 – 15 and 17 have been rejected. Claims 4 and 5 have been objected to. Claims 1, 3 – 5, 13 and 14 have been amended and Claims 22 – 24 have been added by amendment.

Therefore, Claims 1, and 3 – 24 are pending in the Application. Reconsideration of the application based on the remaining claims as amended and arguments submitted below is respectfully requested.

Allowable Subject Matter

The Applicant thanks the Examiner for indicating that Claims 6 – 12, 16 and 18 – 21 are allowed over the prior art of record.

The Applicant also thanks the Examiner for indicating that Claims 4 and 5 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claims 4 and 5 have been amended as suggested by the Examiner and they are now in allowable form.

New Claims

Independent Claims 22 – 24 have been added by amendment. Claim 22 more precisely claims of the current invention by reciting additional limitations regarding a refrigerant coil in a refrigerant system disclosed on page 6 lines 2 and 14 – 20 of the application. Claims 23 and 24 more precisely claim the current invention by reciting additional limitations regarding a refrigerant heat transfer system adapted for

operation in a heating mode including operation in a heating cycle. Claim 24 recites a yet additional limitation of operation in a defrost cycle. These limitations are disclosed on page 6 lines 2 and 14 – 20 of the application. No new search is required.

The cited prior art references fail to teach or suggest all the claim limitations of Claims 22 – 24. Applicant respectfully submits that new Claims 22 – 24 would overcome any rejection under 35 U.S.C. § 103 in view of the cited prior art. Applicant respectfully further submits that Claims 22 – 24 are in condition for allowance.

Amendment of Rejected Claims

In amending the above-identified rejected claims, Applicant has modified the independent Claims 1, 13 and 14 to recite a limitation of a heat exchanger adapted for operation promoting adherence of frozen moisture to the heat exchange surface. This limitation is disclosed in the specification of the application on page 4 beginning at line 14 through line 7 of page 5. These amendments and the amendments to the above-identified dependent claims have been made to more particularly claim the present invention and are expressly not made for the sake of patentability.

Claim Rejections - 35 U.S.C. § 103

Claims 1 – 3, 13 – 15 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Balmer et al (5,199,486) in view of Lopez (5,725,047). Balmer teaches a heat exchanger array of tubes having a non-stick coating. Lopez teaches finned material removably disposed between tubes in a horizontal heat exchanger array of tubes.

I. Extrinsic Evidence Rebutts the Prima Facie Conclusion of Obviousness

- (1) Invention meets a long felt but heretofore unresolved need in the industry.

MPEP § 2141 states that “[o]bjective evidence or secondary considerations such as ... long-felt need ... are relevant to the issue of obviousness and must be considered in every case in which they are present.” citing *Stratoflex, Inc. v. Aeroquip Corp*, 713, F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983). MPEP § 716 states that “[a]ffidavits or declarations, when timely presented, containing evidence of... long-felt but unsolved needs ...must be considered by the examiner in determining the issue of obviousness of claims for patentability under 35 U.S.C. § 103.”

The Declaration submitted with this Response shows the subject matter of each of the claims in the present Application has met two related long felt but heretofore unresolved needs in the heating and air-conditioning industry: (1) the need to eliminate or greatly reduce frost buildup on the outdoor coil surfaces of air-sourced heating and cooling systems whenever the temperature of the coil falls below 32.degree. F and (2) the concurrent need to eliminate or greatly reduce the intermittent use of defrost cycles when operating air-sourced heating and cooling systems in a heating mode. The commercial value of eliminating or greatly reducing the intermittent use of defrost cycles is shown by the Declaration, and may also be inferred by the numerous patents directed toward making the defrost cycles of air-sourced heating and cooling systems more efficient.

The present invention solves the problem of ice build up without the need of employing a defrost cycle and, thus, allows: (1) continuous, efficient operation of the

heating and cooling system in the heating cycle without interruption for a defrost cycle; (2) reduces the complexity of the control systems; and (3) greatly reduces the energy consumption while operating in the heating mode.

Applicant respectfully submits that the *prima facie* conclusion of obviousness as regards Claims 1 – 3, 13 – 15 and 17, as previously amended and as currently amended, under 35 U.S.C. §103 is rebutted by the enclosed Affidavit showing evidence of a long felt, but previously unmet need. For this reason, Applicant respectfully requests that the rejection of Claims 1 – 3, 13 – 15 and 17 under § 103 be withdrawn.

II. Substantive Shortcomings of the Rejection

(1) Combined prior art fails to teach or suggest all claim limitations.

Claims 1 – 3, 13 – 15 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Balmer et al (5,199,486) in view of Lopez (5,725,047). MPEP § 2142 states that “[t]o establish a *prima facie* case of obviousness ...the prior art reference[s] must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art,” citing *In re Vaeck*, 947, F.2d 488, 20 USPQ 1438 (Fed. Cir. 1991). Balmer teaches a heat exchanger array of tubes having a non-stick coating. (Balmer, column 3 lines 25 – 35). Lopez teaches finned material removably disposed between tubes in a horizontal heat exchanger array of tubes. (Lopez, Figures 4, 5 and 9, and column 3 lines 28 – 40). The Office Action asserts that it

would have been obvious to “modify the heat exchanger disclosed by Balmer with fins [with a non-stick coating] taught by Lopez.” (Office Action, page 2).

Applicant respectfully disagrees. Claims 1, 13 (as currently amended) and 14 recite a limitation of “a non-stick coating applied to the heat exchange surface including at least one said fin [or finned heating surface].” Balmer and Lopez fail to teach or suggest this limitation of coating said fin with a non-stick coating. Lopez teaches application of “non-stick material such as [PTFE]” to heat exchanger frames but not to the removable fins. (Lopez, column 5 lines 25 – 37). Lopez discloses use of non-stick coating to make components of the heat exchanger “more difficult to soil and easier to clean if soiled.” Lopez also discloses use of non-stick coating (154) applied to the surfaces of “extrusions having integral passages (150 and 152,” i.e. tubes. (Lopez, Figure 14, and column 5 lines 25 – 37). Thus, Lopez teaches tubes having a non-stick coating. The teachings of Balmer add nothing but emphasis to the teachings of Lopez in this respect. However, Lopez fails to teach application of a non-stick coating to heat exchange tubing fins to prevent fouling. Instead, Lopez teaches replacement of removable fin modules having “dirty or otherwise ineffective fins” from the heat exchanger frame and replacement with new, unclosed fin modules. In contrast, Claims 1 recites a fin or finned heating surface with a non-stick coating. The latter includes patentably different structural limitations not taught or suggested by the combined prior art.

Applicant respectfully submits that the cited references fail to factually support a *prima facie* conclusion of obviousness as regards Claims 1, 13 and 14. Applicant

respectfully requests that the rejection of Claims 1, 13 and 14 under § 103 be withdrawn. Since Claim 3 depends from Claim 1 and Claims 15 and 17 depend from Claim 14, Applicant respectfully submits that the cited references fail to factually support a *prima facie* conclusion of obviousness as regards Claims 3, 15, and 17. For this reason, Applicant respectfully requests that the rejection of Claims 3, 15, and 17 under § 103 be withdrawn.

III. Procedural Shortcomings of the Rejections:

- (1) There is no basis in the art for combining the references.

To rely on references under § 103, there must be a basis in the art for combining or modifying references. MPEP § 2143.01 states that, “the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination,” citing *In re Mills*, 916 F.2d 608, 16 USPQ2d 1430 (Fed. Cir. 1990). The Federal Circuit stated in *In re Rouffet*, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998) that to “prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the [Office Action] to show a motivation to combine the references that create the case of obviousness.” The court further noted that there were three possible sources for such motivations, namely “(1) the nature of the problem to be solved; (2) the teachings of the prior art; and (3) the knowledge of persons of ordinary skill in the art.” Further, the Office Action, whether relying “on an express or an implicit showing [of motivation], must provide particular findings related thereto. Broad conclusory statements standing alone are not evidence.” *In*

re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) Applicant notes that the Office Action fails to cite any explicit teaching in the prior art to suggest coating fins with non-stick material. In the present application and in the subsequently filed Information Disclosure Statement, the Applicant stated that the general problem of ice accumulation upon air-exposed heat exchanges of heating and cooling systems has already been solved in the prior art through use of defrost cycles and fans. The Office Action makes no showing of why it would have been obvious to eschew the use of defrost cycles and fans of the prior art for the non-stick coatings of the present invention. Applicant asserts that the Office Action has failed to provide the required particular findings relating to motivation, suggestion or teaching to combine the cited references and has only provided broad conclusory statements as to obviousness. Since there is no proper evidence of a suggestion or motivation to combine the cited references, the Balmer and Lopez references are not properly combinable under § 103.

Based on the argument above, Applicant respectfully submits that, since the cited references are not properly combinable, the Office Action has failed to establish any *prima facie* conclusion of obviousness. For this reason, Applicant respectfully requests that the rejection of Claims 1 – 3, 13 – 15 and 17 under § 103 be withdrawn.

Conclusion

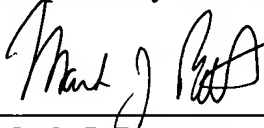
For each and every of the foregoing reasons, Applicant assert that the rejection of Claims 1 – 3, 13 – 15 and 17 under 35 U.S.C. § 103(a) should be

withdrawn. Applicant respectfully further submits that Claims 1, and 3 – 24, as amended, are in condition for allowance.

Applicant has commented on some of the distinctions between the cited references and the claims to facilitate a better understanding of the present invention. This discussion is not exhaustive of the facets of the invention, and Applicant hereby reserves the right to present additional distinctions as appropriate. Furthermore, while these remarks may employ shortened, more specific, or variant descriptions of some of the claim language, Applicant respectfully notes that these remarks are not to be used to create implied limitations in the claims and only the actual wording of the claims should be considered against these references.

The Commissioner is authorized to charge any deficiency or credit any overpayment associated with the filing of this Response to Deposit Account 23-0035.

Respectfully submitted,



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